004

SITE ASSESSMENT REPORT
FOR
THE INTERNATIONAL HARVESTER SITE
U.S. EPA ID:
TDD: T05-9304-010
PAN: EIL0607SAA

October 7, 1993

Prepared by: Richard L. Boeke Date: 10-7-93
Reviewed by: [signature] Date: 10-7-93
Approved by: [signature] Date: 10/7/93

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

LIST OF TABLES

1.0 INTRODUCTION

The Ecology and Environment, Inc. (E & E) Technical Assistance Team (TAT) was tasked by the United States Environmental Protection Agency (U.S. EPA) to conduct a site assessment to evaluate the potential threat to human health and the environment at the former International Harvester Site, Chicago, Cook County, Illinois, under Technical Direction Document (TDD) T05-9304-010. Agricultural equipment and related components were formerly manufactured at this facility, which is almost entirely demolished.

2.0 SITE BACKGROUND

The International Harvester (IH) site is an open parcel of land (approximately 21 acres) located at 1015 West 120th Street in an industrial zone in the Calumet area of southeast Chicago (see Figure 1 for site location). The site is located in the northeast corner of Section 29 of Township 37 North, Range 14 East (41° 40' 30.2" north, 87° 38' 52.1" west). The West Pullman Branch Elementary School is located approximately 625 feet southwest of the site.

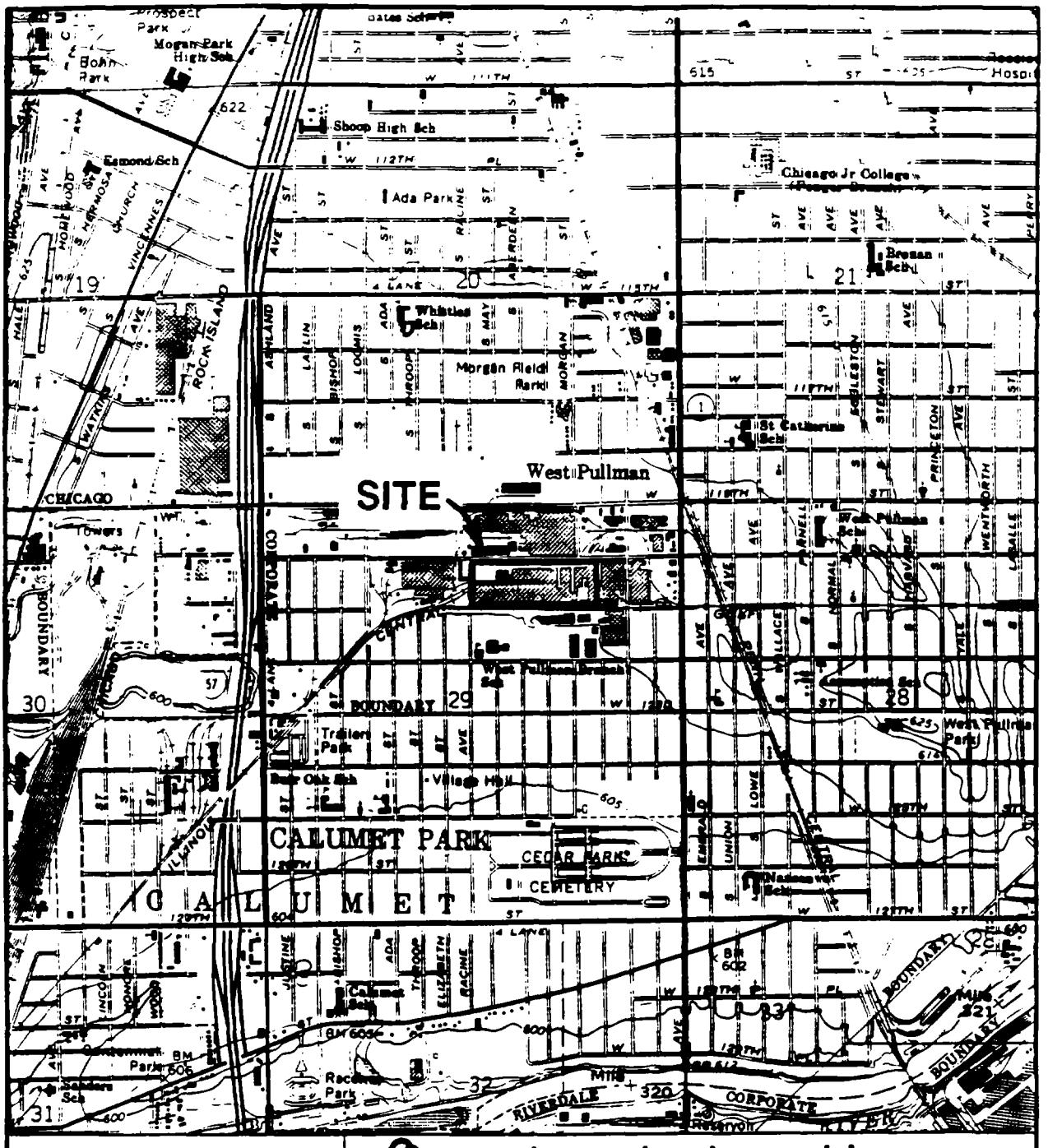
International Harvester acquired the property in 1902 from Plano Manufacturing Company, which manufactured agricultural implements. A number of manufacturing processes were used during the 81 years that Internationsl Harvester operated at the site, including painting, forging, punching, woodworking, machining, heat treating, and on-site power generation. A number of potentially hazardous substances, such as solvents, oils, fuels, acids, and insulation containing asbestos, were used in these processes. The International Harvester facility was closed and demolished in 1983.

In August 1987, the U.S. EPA TAT conducted a site assessment at the IH site. Analysis of soil samples found polychlorinated byphenyls (PCBs) at concentrations below 50 parts per million (ppm).

In August 1988, the Illinois Environmental Protection Agency (IEPA) conducted a screening site inspection (SSI) of IH site. Analysis of soil samples collected on-site found low levels of polyaromatic hydrocarbons (PAHs) and asbestos.

In June 1991, the U.S. EPA Field Investigation Team (FIT) conducted an off-site reconnaissance inspection of the IH site. The FIT documented hydrologic surface and groundwater data and found demolition debris at the site.

To confirm previous findings conducted by the IEPA, the U.S. EPA requested the TAT to conduct a site assessment at the IH site on August 17, 1993.



ecology and environment, inc.
Technical Assistance Team
Region V

TITLE	Regional Site Location Map	FIGURE #	1
SITE	International Harvester	TDD#	T05-9304-010
CITY	Chicago	STATE Illinois	SCALE 1" = 2,000'
SOURCE	U.S.G.S. Quadrangle, Blue Island, Il. 1973	DATE	8/20/93
		REVISED	

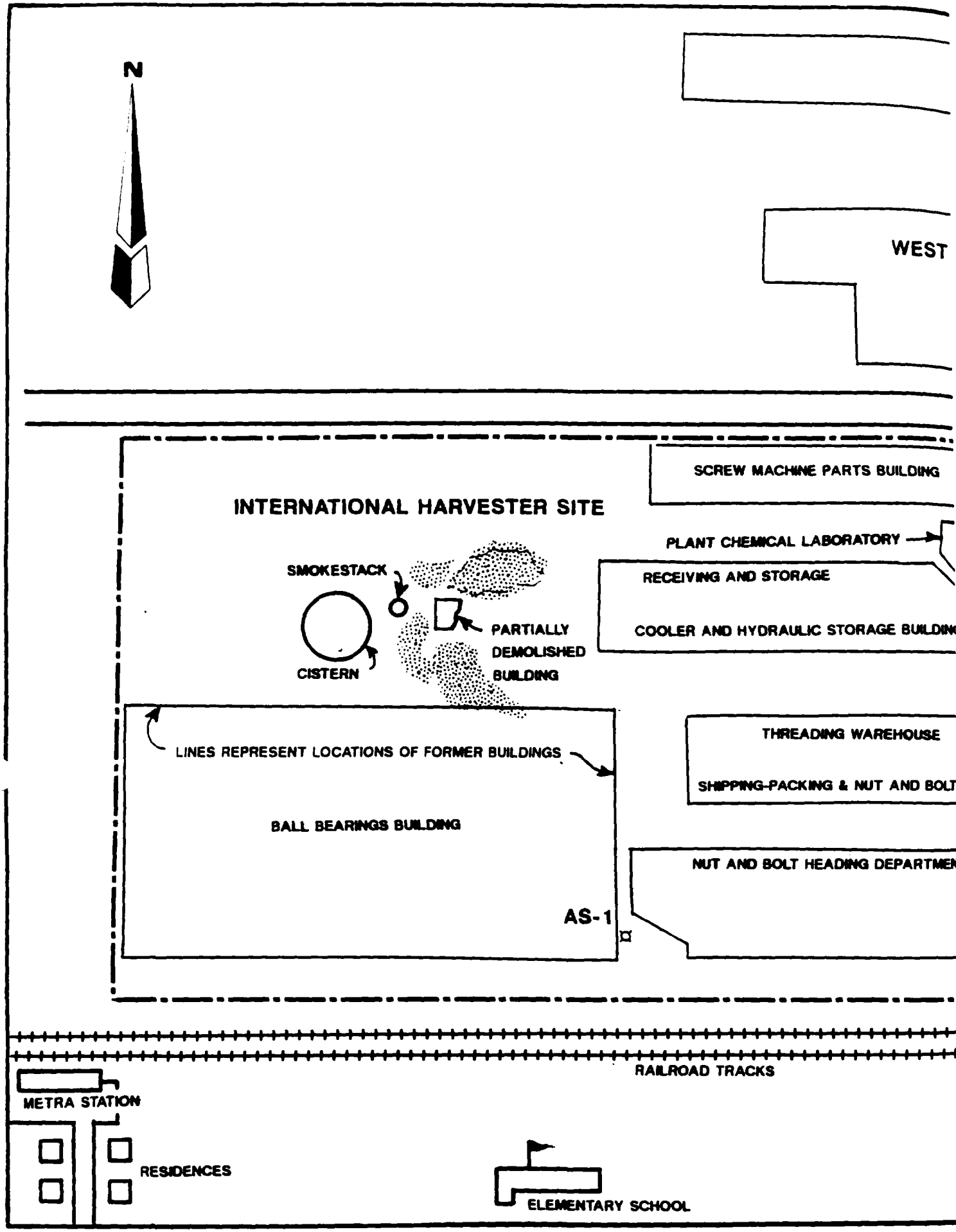
3.0 SITE ACTIVITIES

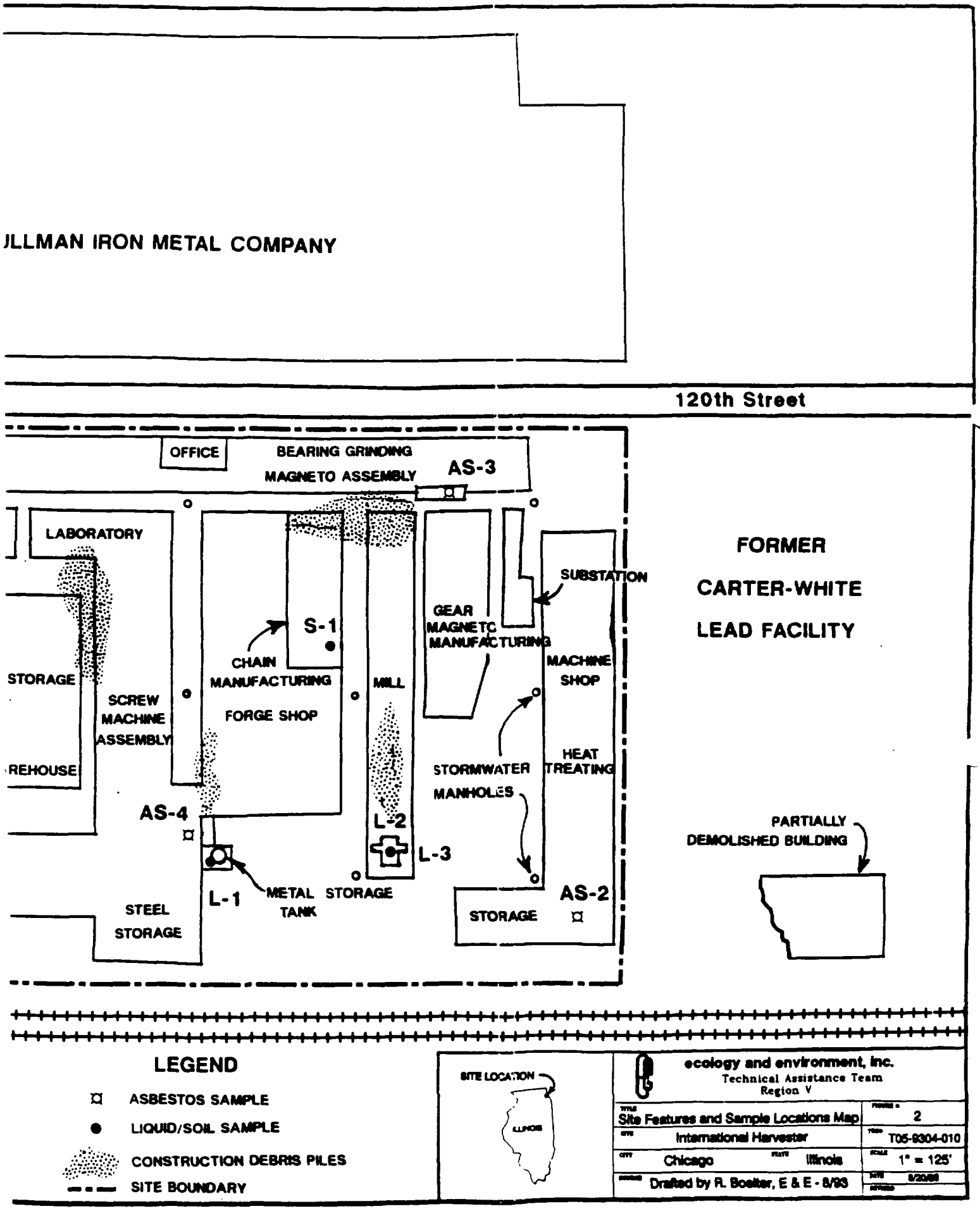
August 17, 1993: TAT members Richard Boelter and Ron Bugg mobilized equipment and arrived at the IH site at 0750 hours. U.S. EPA On-Scene Coordinator (OSC) Paul Steadman arrived on-site at 0800 hours.

Vehicle access to the site was partially restricted by a low 2-strand, quarter-inch steel fence on 120th Street, the east, and west sides of the site. A 6-foot-high chain-link fence bordered the south side of the site. The TAT observed several locations along the fence (at the southwest, northeast, and west side of the site) where the site was easily accessible by foot or vehicle. The OSC and the TAT entered the site by vehicle at the corner of 120th Street and Peoria Street through a break in the fence. Evidence of transients on-site was apparent from gang graffiti and minor amounts of trash present on the site.

From 0830 hours to 1030 hours, the OSC and the TAT performed an initial site walk-through to determine ambient air conditions and locations for collecting samples (see Figure 2 for site features and sample locations). All buildings on-site had been demolished with the exception of a smokestack and a partially demolished pump building near the smokestack. The majority of the site was covered with an intact concrete foundation. Several open manholes leading to a stormwater sewer system were monitored for ambient air conditions with an explosimeter. No readings above background were indicated by the explosimeter. Demolition debris waste piles 10 to 15 feet high consisting of concrete and steel were observed at several locations on-site. Residences are located approximately 250 feet south of the site.

Between 1045 hours to 1142 hours, the TAT collected 1-ounce grab samples of suspected asbestos-containing material (ACM) from four locations (labeled as AS-1, AS-2, AS-3, and AS-4). At 1155 hours, the TAT collected a grab water sample (L-1) from an area adjacent to a large open holding tank approximately 10 feet high and 12 feet in diameter. An oily sheen was observed on the water at this location. At 1225 hours, the TAT collected grab water sample L-2 and duplicate water sample L-3 from an open cement pit located near the southeastern portion of the site. The pit was approximately 3 feet deep and irregular in shape. The pit also contained a fuel tank and some component parts of motors. Additionally, fuel oil appeared to be floating on the surface. At 1310 hours, the TAT collected a 4-ounce soil sample from an oil-stained area near the east-central portion of the site. The oil stained soil was approximately 2 inches thick on top of a concrete foundation and covered an area measuring approximately 20 by 20 feet. The TAT observed a maximum of 10 of these oil-stained areas on-site. These oil-stained areas may have been utilized for heavy equipment such as punch presses in the former manufacturing facility.


N
WEST
SCREW MACHINE PARTS BUILDING
INTERNATIONAL HARVESTER SITE
PLANT CHEMICAL LABORATORY
SMOKESTACK
RECEIVING AND STORAGE
PARTIALLY
DEMOLISHED
BUILDING
COOLER AND HYDRAULIC STORAGE BUILDIN
CISTERN
THREADING WAREHOUSE
LINES REPRESENT LOCATIONS OF FORMER BUILDINGS
SHIPPING-PACKING & NUT AND BOLT
BALL BEARINGS BUILDING
NUT AND BOLT HEADING DEPARTMEN
AS-1
RAILROAD TRACKS
METRA STATION
RESIDENCES
ELEMENTARY SCHOOL


JLLMAN IRON METAL COMPANY
120th Street
OFFICE
BEARING GRINDING
MAGNETO ASSEMBLY
AS-3
LABORATORY
STORAGE
SCREW
MACHINE
ASSEMBLY
REHOUSE
S-1
CHAIN
MANUFACTURING
FORGE SHOP
MILL
GEAR
MAGNETC
MANUFACTURING
SUBSTATION
MACHINE
SHOP
FORMER
CARTER-WHITE
LEAD FACILITY
STORMWATER
MANHOLES
HEAT
TREATING
AS-4
L-2
L-3
L-1
METAL
TANK
STORAGE
AS-2
STORAGE
STEEL
STORAGE
PARTIALLY
DEMOLISHED BUILDING
LEGEND
ASBESTOS SAMPLE
LIQUID/SOIL SAMPLE
CONSTRUCTION DEBRIS PILES
SITE BOUNDARY
SITE LOCATION
ILLINOIS
ecology and environment, inc.
Technical Assistance Team
Region V
Site Features and Sample Locations Map
2
International Harvester
T05-9304-010
Chicago
Illinois
1" = 125'
Drafted by R. Boelter, E & E - 8/93

The TAT photodocumented all sampling events and locations (see Appendix A for site photographs). All sampling was conducted according to E & E standard operating procedures.

4.0 ANALYTICAL RESULTS

Water samples L-1, L-2, and duplicate water sample L-3 were analyzed for VOCs (Method 8240) and PAHs (SW-846 Method 8310). Soil sample S-1 was analyzed for Toxicity Characteristic Leachate Procedure (TCLP) Resource Conservation Recovery Act (RCRA) metals (Methods 7471 and 6010) and PAHs (SW-846 Method 8310). All liquid and soil samples were analyzed by IEA of Schaumburg, Illinois, under TDD number T05-9308-804, utilizing quality assurance (QA) Level II guidance. The asbestos samples were analyzed by the Department of Health and Human Services of Denver, Colorado, in compliance with U.S. EPA guidelines (NIOSH 7403) through an inter-agency agreement. A summary of the data analysis results is presented in Table 1,2, and 3. The complete data package and Quality Assurance (QA) report is attached as Appendix B. All data have been found acceptable for use.

Table 1 outlines the analytical results for the samples of suspected ACM. Sample AS-2 was identified as 40% Chrysotile, and described as transite asbestos. This type of asbestos is.non-friable and may not readily release fibers into the atmosphere. Transite asbestos was commonly used as surfacing material on walls and ceilings. Based on visual observations, the estimated total volume of the transite asbestos on-site was estimated to be 20 to 30 cubic yards.

Table 2 outlines the analytical results for the water samples collected on-site. Low levels of acetone were found in samples L-1, L-2, and L-3 at 48 parts per billion (ppb), 770 ppb, and 610 ppb respectively. Low levels of the compound 2-Butanone were found in samples L-2 and L-3 (170 ppb and 240 ppb respectively). No significant levels of TCLP metals were found in soil sample S-1.

Table 3 outlines the PAH concentrations found in soil sample S-1. PAHs were found in sample S-1 at a concentration of 1,128 parts per million total PAHs.

5.0 DISCUSSION OF POTENTIAL THREATS

Asbestos is broadly categorized as either friable or nonfriable material. Asbestos that can be crushed via hand pressure is called friable and readily releases fibers into the air. Nonfriable materials can not be crushed with hand pressure but may still release fibers into the air if disturbed. The asbestos analysis of the construction debris at the IH site, revealed nonfriable asbestos at one sample location. The quantity of Chrysotile (transite) asbestos material on-site is

estimated to be low (approximately 20 to 30 cubic yards). Photograph frames #3 and #7 illustrate the partial extent of transite asbestos on the east side of the site. As frame #3 clearly illustrates, the transite asbestos is lying scattered on the concrete foundation, primarily on the east side of the site. This type of asbestos is easily identifiable on-site. The permissible exposure limit (PEL) for asbestos is 0.2 fibers per cubic centimeter (f/cc) of air calculated as an 8-hour time-weighted average (TWA). Although the quantity of asbestos on-site is estimated to be low, the potential for the particles to become disturbed and airborne is high due to the open nature and accessibility of the site. Asbestos has been proven to cause asbestosis, a fibrosis scarring of the lung tissue, and mesothelioma, cancer of the chest lining.

Acetone and 2-Butanone were found in surface waters at the IH site, but according to toxicological profiles developed by the U.S. Department of Health and Human Services, the substances at these concentrations do not constitute a potential threat to human health and the environment.

The PAH concentrations found in soil sample S-1 at IH site indicated a fairly high level of total PAHs (1,128 ppm) within an oil-stained area. The Occupational Safety and Health Administration (OSHA) PEL for PAHs in air is 0.2 mg/m^3 (8-hour exposure) and 28 ng/l X 10^{-5} for ambient water. There are no regulatory guidelines for PAHs concentrations in soils. However, some of the compounds of PAHs (such as Benzo[a]pyrene) are considered to be carcinogenic. The PAH-contaminated areas are small and confined to a concrete foundation. Based on the size and number of the oil-stained areas on-site, an estimated 25 cubic yards of soil is contaminated with PAHs. Due to the open nature of the site, the PAH concentrations could potentially migrate and become a threat to human health and the environment.

6.0 SUMMARY

Low quantities of asbestos and PAH contaminated-soil are present at the IH site, and represent a potential health problem. The presence of open manholes and other physical hazards presents a danger because of the inadequate site security. Due to the close proximity of an elementary school and residences, the TAT recommends that, at a minimum, the asbestos and PAH-contaminated material should be collected and disposed of properly according to U.S. EPA National Emissions Standards for Hazardous Air Pollutants (NESHAPS) regulations and guidelines.

Because the IH site is very large, the TAT also recommends more sampling to delineate the environmental nature of this site. Test cores through the cement foundation of soil beneath the site should be sampled and analyzed for VOCs and PAHs.

Table 1

Sample Analytical Results
For Asbestos
Polarized Light Microscopy
International Harvester Site

Sample Location	Asbestos Present	Asbestiform Mineral Fibers	Other Fibrous Constituents %	Total % Asbestos
AS-1	No	None detected	Cellulose - 10%	0%
AS-2	Yes	Chrysotile - 40%		40%
AS-3	No	None detected	Fibrous Glass - 40% Cellulose - 5%	0%
AS-4	No	None detected	Cellulose - 10% Fibrous Glass - 5%	0%

Table 2

Sample Analytical Results
For Volatile Organic Compounds (ug/L)
International Harvester Site

Sample Location	L-1	L-2	L-3
Chloromethane	U	U	U
Bromomethane	U	U	U
Vinyl Chloride	U	U	U
Chloroethane	U	U	U
Methylene Chloride	U	U	U
Acetone	48	770	610E
Carbon Disulfide	U	U	U
1,1-Dichloroethene	U	U	U
1,1-Dichloroethane	U	U	U
total-1,2-Dichloroethene	U	U	U
Chloroform	U	U	U
1,2-Dichloroethane	U	U	U
2-Butanone	U	170	240E
1,1,1-Trichlorethane	U	U	U
Carbon Tetrachloride	U	U	U
Vinyl Acetate	U	U	U
Bromodichloromethane	U	U	U
1,2-Dichloropropane	U	U	U
Trans-1,3-dichloropropene	U	U	U
Trichloroethylene	U	U	U
Dibromochloromethane	U	U	U
1,1,2-Trichloroethane	U	U	U
Benzene	U	U	U
cis-1,3-Dichloropropene	U	U	U
2-Chloroethylvinylether	U	U	U
Bromoform	U	U	U
4-Methyl-2-Pentanone	U	U	12
2-Hexanone	U	U	21
Tetrachloroethylene	U	U	U
1,1,2,2-Tetrachloroethane	U	U	U
Toluene	U	U	U
Chlorobenzene	U	U	U
Ethylbenzene	U	U	U
Styrene	U	U	U
Total Xylenes	U	U	U

Table 3

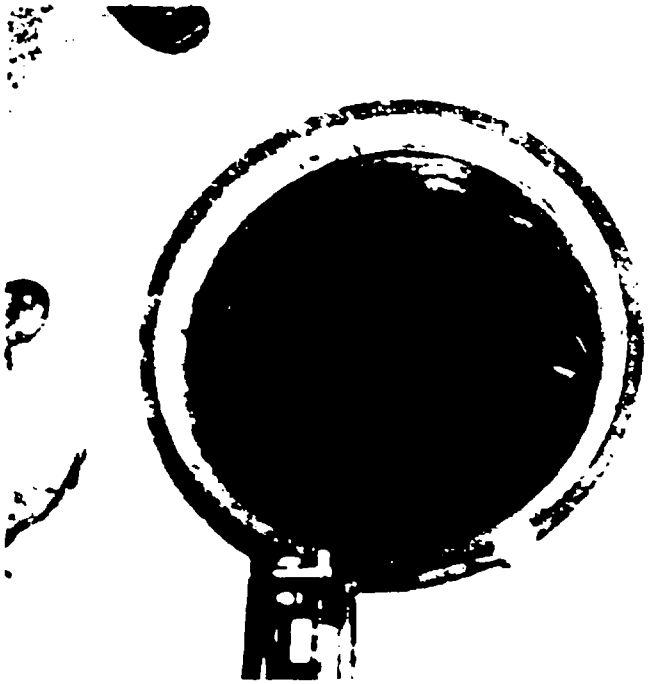
Sample Analytical Results
For Polynuclear Aromatic Hydrocarbons
(mg/kg)
International Harvester Site

Sample Location	**S-1**
Naphthalene	110
Acenaphthylene	< 66
Acenaphthene	340
Fluorene	< 66
Pyrene	190
Benzo(a)anthracene	78
Chrysene	270
Benzo(b)fluoranthene	140
Benzo(k)fluoranthene	< 66
Benzo(a)pyrene	< 66
Indeno(1,2,3-cd)pyrene	< 66
Dibenzo(a,h)anthracene	< 66
Benzo(g,h,i)perylene	< 66
Total PAHs	1,128

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: > International Harvester Frames: 1 & 2 PAGE > 1 OF 7

FILM ROLL # > 1 TDD: > T05-9304-010 PAN: > EIL0607SAA



DATE: 8/17/93

TIME: 08:30

DIRECTION OF PHOTOGRAPH:
North

WEATHER CONDITIONS:
Hazy, sunny
Temp = 74°

PHOTOGRAPHED BY:
Richard Boelter

SAMPLE LOCATION NUMBER
N/A

DESCRIPTION: Air monitoring several manholes to sewer on IH property, no levels above background were detected. Location is on the east side of the site.

DATE: > 8/17/93

TIME: 08:48

DIRECTION OF PHOTOGRAPH:
EAST

WEATHER CONDITIONS:
Hazy, sunny

PHOTOGRAPHED BY:
Richard Boelter

SAMPLE LOCATION NUMBER
N/A

DESCRIPTION: Suspected asbestos littering the ground on the east side of the site. Cement foundation covers almost entire site.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: > International Harvester Frames: 3 & 4 PAGE > 2 OF 7

FILM ROLL # > 1 TDD: > T05-9304-010 PAN: > EIL0607SAA

DATE: > 8/17/93

TIME: 09:42

DIRECTION OF PHOTOGRAPH: SOUTH

WEATHER CONDITIONS: Hazy, sunny Temp = 76°

PHOTOGRAPHED BY: Richard Boelter

SAMPLE LOCATION NUMBER N/A

DESCRIPTION: Suspected transite asbestos littering at southeastern portion of the site. Note the break in the fence on south side.

DATE: > 8/17/93

TIME: 09:50

DIRECTION OF PHOTOGRAPH: SOUTH

WEATHER CONDITIONS: 76° Hazy, sunny

PHOTOGRAPHED BY: Richard Boelter

SAMPLE LOCATION NUMBER N/A

DESCRIPTION: Large holding tank near south central portion of site. An oil sheen was noted floating on the water adjacent to the tank.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: > International Harvester Frames: 5 & 6 PAGE > 3 OF 7

FILM ROLL # > 1 TDD: > T05-9304-010 PAN: > EIL0607SAA

DATE: > 8/17/93

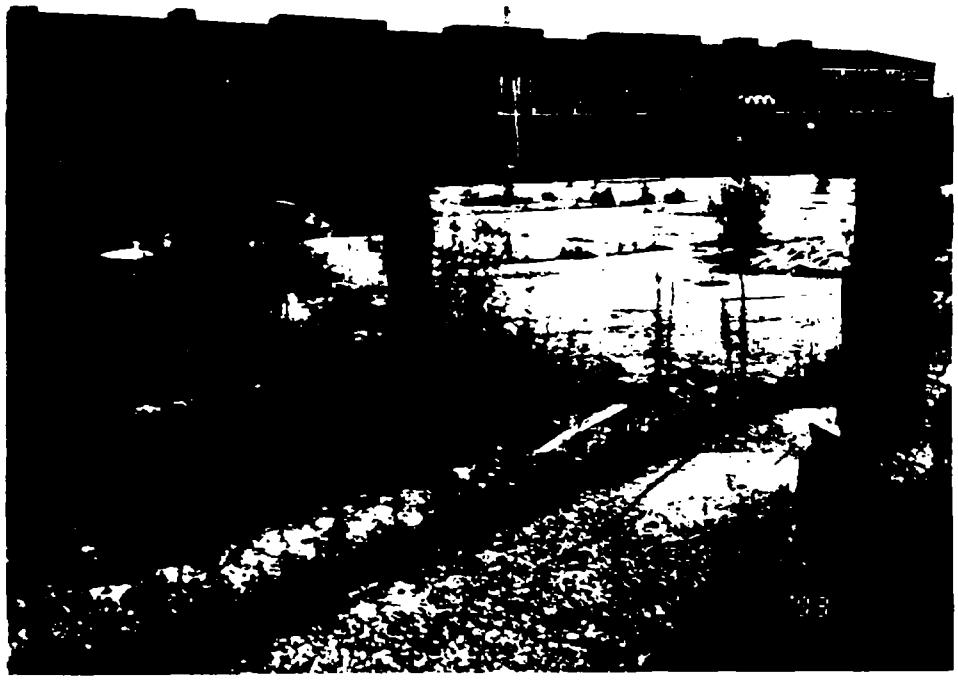
TIME: > 10:15

DIRECTION OF PHOTOGRAPH:
NORTHEAST

WEATHER CONDITIONS:
Sunny, T=76°

PHOTOGRAPHED BY:
Richard Boelter

SAMPLE LOCATION NUMBER
N/A



DESCRIPTION: West side of site, 2 strand 1/4" fence with a break in the outside perimeter. Site is easily accessible by foot.

DATE: > 8/17/93

TIME: 10:56

DIRECTION OF PHOTOGRAPH:
NORTH

WEATHER CONDITIONS:
Hazy, sunny
Temp = 79°

PHOTOGRAPHED BY:
Richard Boelter

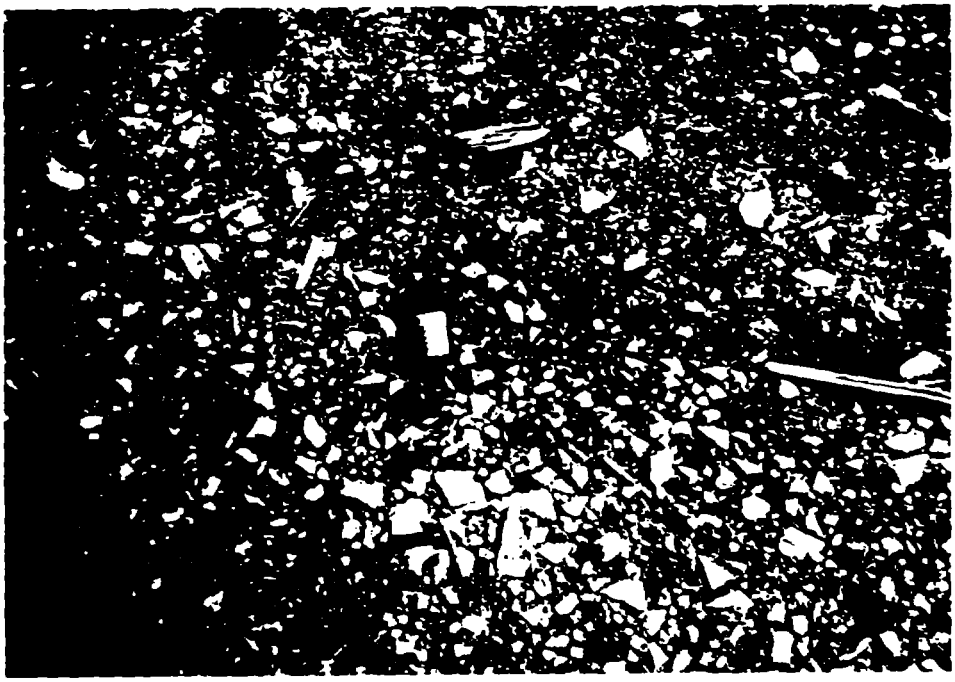
SAMPLE LOCATION NUMBER
AS-1

DESCRIPTION: Suspected asbestos and sample location of AS-1 near south central portion of site.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: > International Harvester Frames: 7 & 8 PAGE > 4 OF 7

FILM ROLL # > 1 TDD: > T05-9304-010 PAN: > EIL0607SAA



DATE: > 8/17/93

TIME: 11:20

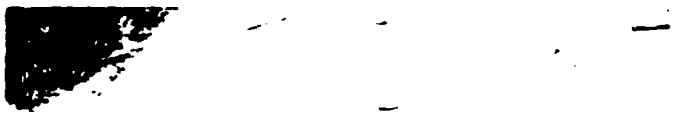
DIRECTION OF PHOTOGRAPH:
EAST

WEATHER CONDITIONS: 79°
Hazy, sunny

PHOTOGRAPHED BY:
Richard Boelter

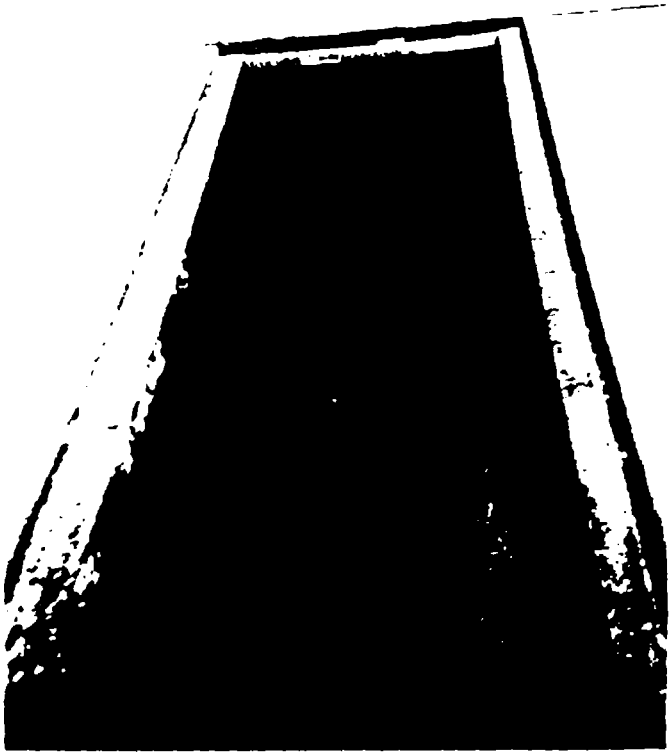
SAMPLE LOCATION NUMBER
AS-2

DESCRIPTION: Sample location AS-2, suspected transite asbestos located near southeast portion of site.



DATE: > 8/17/93

TIME: > 11:35



DIRECTION OF PHOTOGRAPH:
EAST

WEATHER CONDITIONS:
Sunny, partly hazy
Temp = 82°

PHOTOGRAPHED BY:
Richard Boelter

SAMPLE LOCATION NUMBER
AS-3

DESCRIPTION: Sample location of suspected asbestos from pipe insulation in pits located on north side of site. AS-3.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: > International Harvester Frames: 9 & 10 PAGE > 5 OF 7

FILM ROLL # > 1 TDD: > T05-9304-010 PAN: > EIL0607SAA

DATE: > 8/17/93

TIME: 11:47

DIRECTION OF PHOTOGRAPH: NORTHWEST

WEATHER CONDITIONS: Hazy, sunny Temp = 82°

PHOTOGRAPHED BY: Richard Boelter

SAMPLE LOCATION NUMBER AS-4

DESCRIPTION: Sample location AS-4, South Central portion of site. Suspected asbestos.

DATE: > 8/17/93

TIME: 12:00

DIRECTION OF PHOTOGRAPH: SOUTHEAST

WEATHER CONDITIONS: 82° Hazy, sunny

PHOTOGRAPHED BY: Richard Boelter

SAMPLE LOCATION NUMBER L-1

DESCRIPTION: Sample location L-1, water sample for volatile organic and PAH analysis. Sample taken from outside of large tank on the south side of the site.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: > International Harvester Frames: 11 & 12 PAGE > 6 OF 7

FILM ROLL # > 1 TDD: > T05-9304-010 PAN: > EIL0607SAA

DATE: > 8/17/93

TIME: 12:05

DIRECTION OF PHOTOGRAPH: NORTHEAST

WEATHER CONDITIONS: Hazy, sunny Temp = 82°

PHOTOGRAPHED BY: Richard Boelter

SAMPLE LOCATION NUMBER N/A

DESCRIPTION: Scattered debris near sample location AS-4 and L-1 near south central portion of the site.

DATE: > 8/17/93

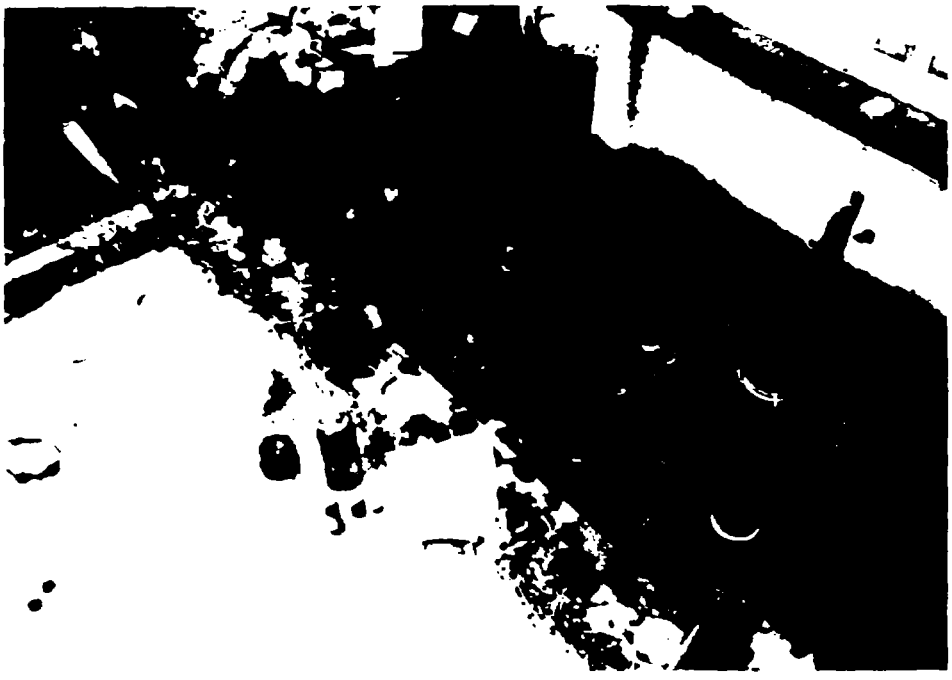
TIME: 12:38

DIRECTION OF PHOTOGRAPH: NORTHWEST

WEATHER CONDITIONS: 82° Hazy, sunny

PHOTOGRAPHED BY: Richard Boelter

SAMPLE LOCATION NUMBER L-2



DESCRIPTION: Sample location L-2 and duplicate sample L-3, oily appearing liquid in pit near southeast portion of the site, sample analyzed for VOCs and PAHs.

FIELD PHOTOGRAPHY LOG SHEET

SITE NAME: > International Harvester **Frame: 13** **PAGE > 7 OF 7**

FILM ROLL # > 1 **TDD: > T05-9304-010** **PAN: > EIL0607SAA**

DATE: > 8/17/93

TIME: 13:08

DIRECTION OF PHOTOGRAPH:
NORTHWEST

WEATHER CONDITIONS:
Hazy, sunny
Temp = 82°

PHOTOGRAPHED BY:
Richard Boelter

SAMPLE LOCATION NUMBER
S-1

DESCRIPTION: Sample location S-1, oil stained blocks of wood and minor amounts of sediment beneath wood near central portion of site.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Public Health Service
Region VIII

Health Unit 40
P.O. Box 25145
Denver Federal Center
Denver, CO 80225-0145

August 19, 1993

Mr. Richard G. Boetter
Ecology & Environment, Inc.
111 W. Jackson Blvd.
Chicago, Il. 60604

Ecology & Environment, Inc.

Dear Mr. Boetter:

Attached are the results of the bulk sample materials from T05-9304-010 submitted to the Division of Federal Occupational Health (DFOH) National Environmental Reference Laboratory in Denver, Colorado for asbestos identification. These samples were received at our facility on August 18, 1993. The methods used for this evaluation involved stereo and polarized light microscopy (PLM), supplemented with optical dispersion staining techniques developed by the McCrone Research Institute and in compliance with the guidelines established by EPA in its Interim Method for the Determination of Asbestos Analysis in Bulk Samples (EPA-600/MA-82-020). The DFOH laboratory services are currently accredited for bulk asbestos analysis through the EPA Interim Laboratory Accreditation Program for Bulk Asbestos Analysis and by the National Voluntary Laboratory Accreditation Program (NVLAP). Our NVLAP laboratory code number is 1593.

Through the procedures noted above, the sample is separated according to homogeneity and layering and the principal fibrous and non-fibrous components of each sample material are determined. The fibrous components are then classified as either asbestos and non-asbestos and a percentage composition range is determined for each asbestos material identified. A total asbestos content (by volume) for each individual material and the overall/total sample in question is then calculated. Further evaluations are made to determine size and morphology of the asbestos materials identified. For the purposes of this evaluation, asbestos includes: chrysotile, cummintonite-grunerite (amosite), crocidolite, tremolite, anthophyllite, and actinolite. Asbestos "fibers" for identification purposes are generally classified as particulate matter, which falls within one of the commercial asbestos categories noted above, has physical dimensions longer than 5 micrometers (um), and has a length to width ratio of 3 to 1 or greater. Results of these evaluations are listed in Table 1 and are specific for this sample set only.

If you have any question concerning these findings, or if you have additional questions concerning asbestos identification, evaluation, or abatement, please feel free to contact this office at 303/236-9985 or FTS 776-9985. If DFOH can be of further assistance, please let us know.

ANALYST

Tim Bergquist
PLM Microscopist

LABORATORY DIRECTOR

Bruce Hills, MS, CIH, CSP
Associate Director-Region VIII

TABLE I

DIVISION OF FEDERAL OCCUPATIONAL HEALTH

BULK ASBESTOS ANALYSIS RESULTS

T05-9304-010

PLM LGN 930321

SAMPLE DESCRIPTION	ASBESTOS PRESENT	ASBESTIFORM MINERAL FIBERS	OTHER FIBROUS CONSTITUENTS	TOTAL % ASBESTOS
		--------- Estimated % Composition ---------		
AS-1 TSI; friable; heterogeneous; gray; fibrous.	No	None Detected	Cellulose - 10	0
AS-2 Transite; nonfriable; heterogeneous; gray; fibrous.	Yes	Chrysotile - 40		40
AS-3 TSI; friable; homogeneous; gray; fibrous.	No	None Detected	Fibrous Glass - 40 Cellulose - 5	0
AS-4 TSI; friable; heterogeneous; off-white; fibrous.	No	None Detected	Cellulose - 10 Fibrous Glass - 5	0

* Percent given is a combined total for all asbestos constituents.

ENVIRONMENTAL PROTECTION AGENCY
Office of Enforcement

LGN: (30321)

REGION 5
230 South Dearborn Street
Chicago, Illinois 60604

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME
2-1051	TO5-9304-010 Ecology & Environment, Inc.

SAMPLERS: (Signature) Richard H. Boelter / Tom Bryant

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	Bulk PLM						REMARKS
AS-1	8/17/93	1055		X	Asbestos - GRAB #1	1-2oz.	X						
AS-2	8/17/93	1125		X	Asbestos - GRAB #2	1-2oz.	X						QA/QC Level II
AS-3	8/17/93	1130		X	Asbestos - GRAB #3	1-2oz.	X						
AS-4	8/17/93	1142		X	Asbestos - GRAB #4	1-2oz.	X						Standard turnaround:
													2 week verbal & written
		NO	more		samples								Please fax results to
													Richard H. Boelter
													FAX→(312) 663-9610
													SEND HARDCOPY RESULTS TO:
													Richard H. Boelter
													Ecology & Environment
													111 W. Jackson Blvd.
													Chicago, IL 60604

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Richard H. Boelter	8/17/93 1600	Tom Bryant			
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)	Date / Time	Remarks	
		Tom Bryant	8/18/93 2:50PM	PHS/FECH/NERL Building 25, Denver Federal Center, Denver, CO. 80225	

Distribution: White — Accompanies Shipment; Pink — Coordinator Field Files; Yellow — Laboratory File

5- 01522

ecology and environment, inc.
6777 ENGLE ROAD, CLEVELAND, OHIO 44130, TEL. (216) 243-3330
International Specialists in the Environment

M E M O R A N D U M

TO: Richard G. Boelter, Project Manager, E&E, Chicago, IL

DATE: September 23, 1993

FROM: Frank C. Dachtler, Chemist, E&E, Cleveland, OH FD

THRU: Anne A. Busher, ATATL, E&E, Cleveland, OH AAB

SUBJ: **Solvent Scan Data Quality Assurance Review,** International Harvester Site, Chicago, Cook County, Illinois

RE: Analytical TDD: T059308804 Project TDD: T059304010
Analytical PAN: EIL0607ABA Project PAN: EIL0607SAA

The data quality assurance review of three oil/liquid samples, taken from the International Harvester site on August 18, 1993, is now complete. The samples were submitted to IEA Laboratories of Schaumburg, Illinois, which conducted a GC/MS solvent scan, following SW-846 Method 8240.

The samples were labeled as follows:

TAT Sample #	corresponding to ->	Laboratory Sample #
L-1		931071001
L-2		931071002
L-3		931071003

Data Qualifications:

I Holding Time: Acceptable.

The laboratory received the samples on August 18, 1993, and analyzed them all by August 24, 1993. This is within the required 14 day holding time.

II GC/MS Tuning Criteria: Acceptable.

Bromofluorobenzene (BFB) performance standard was analyzed prior to the samples; all ion abundance criteria were met.

III Initial and Continuing Calibration: Acceptable.

All initial and continuing mean response factors were greater than zero; The percent relative standard deviations (%RSD) of the

response factors in the initial calibration were less than or equal to 30 %RSD, as required. In the continuing calibration, the percent difference (%D) for all VOA compounds were less than or equal to 25 %D, as required, except for: acetone (54.5%), and carbon disulfide (45.2%). Since the data show positive results for acetone, they must be flagged "J", as required.

All Internal Standards (IS) areas were within -50% to +100% of there associated standard, as required.

IV Error Determination: Not applicable.

Precision and bias not determined for these samples.

V Blanks: Acceptable.

A method blank was prepared and analyzed for each matrix. VOA compounds in the method blank were below the instrument detection limit (IDL), as required.

VI Compound Identification: Acceptable.

The reviewer calculated the relative retention times (RRT) of the compounds detected in the sample. These were within 0.06 RRT units of the standard, as required. Compounds present in the standard mass spectra are also present in the sample mass spectra. No stray peaks were present.

VII Compound Quantitation/Stated Detection Limits: Acceptable.

Initial sample volume and dilutions were accounted for in the reported results.

VIII Performance Evaluation Samples: Not Applicable.

IX Optional QC Checks: Acceptable.

Surrogate Recoveries - Surrogate compound recoveries were within the laboratory's stated QC limits.

Overall Assessment:

This data evaluation is based upon the criteria outlined in OSWER Directive 9360.4-01 (1990). With the information provided, the results may be considered acceptable for use with the qualifications stated above.

Data Validation Qualifiers

J The associated numerical value is an estimated quantity because quality control criteria were not met.

IEA
An Aquarion Company

Client: ECOLOGY & ENVIRONMENT
IEA Job#: CH931071
Project #: T05-9304-010

EPA TARGET COMPOUND LIST (TCL)
VOLATILE COMPOUNDS
ug / L

Matrix: WATER
Method: 8240

Dilution Factor (DF)	1	5	1	5	1	PQL
Method Blank	VW0820	VW0824	VW0823	VW0823	VW0820	
Client ID	L-1	L-2	L-3	L-3D1	METHOD BLANK	
Analyte / Lab ID	31071 001	31071 002	31071 003	31071 003D1	VW0820	
Chloromethane	U	U	U	U	U	10
Bromomethane	U	U	U	U	U	10
Vinyl Chloride	U	U	U	U	U	10
Chloroethane	U	U	U	U	U	10
Methylene Chloride	U	U	U	U	U	5
Acetone	48	770	610E	1000	U	10
Carbon Disulfide	U	U	U	U	U	5
1,1-Dichloroethene	U	U	U	U	U	5
1,1-Dichloroethane	U	U	6	U	U	5
total-1,2-Dichloroethene	U	U	U	U	U	5
Chloroform	U	U	U	U	U	5
1,2-Dichloroethane	U	U	U	U	U	5
2-Butanone	U	170	240 E	320	U	10
1,1 1-Trichlorethane	U	U	U	U	U	5
Carbon Tetrachloride	U	U	U	U	U	5
Vinyl Acetate	U	U	U	U	U	10
Bromodichloromethane	U	U	U	U	U	5
1,2-Dichloropropane	U	U	U	U	U	5
Trans-1,3-dichloropropene	U	U	U	U	U	5
Trichloroethylene	U	U	U	U	U	5
Dibromochloromethane	U	U	U	U	U	5
1,1,2-Trichloroethane	U	U	U	U	U	5
Benzene	U	U	U	U	U	5
cis-1,3-Dichloropropene	U	U	U	U	U	5
2-Chloroethylvinylether	U	U	U	U	U	5
Bromoform	U	U	U	U	U	5
4-Methyl-2-Pentanone	U	U	12	U	U	10
2-Hexanone	U	U	21	U	U	10
Tetrachloroethylene	U	U	U	U	U	5
1,1,2,2-Tetrachloroethane	U	U	U	U	U	5
Toluene	U	U	U	U	U	5
Chlorobenzene	U	U	U	U	U	5
Ethylbenzene	U	U	U	U	U	5
Styrene	U	U	U	U	U	5
Total Xylenes	U	U	U	U	U	5
Date Analyzed	8/20/93	8/24/93	8/23/93	8/23/93	8/20/93	

PQL = Practical Quantitation Limit

To obtain sample-specific quantitation limit, multiply the PQL by the Dilution Factor.

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

MEMORANDUM

TO: Richard Boelter, TAT Project Manager, E & E, Chicago, IL

DATE: October 1, 1993

FROM: Frank C. Dachtler, TAT Chemist, E & E, Cleveland, OH

VIA: Emily S. Landis, TAT Geochemist, E & E, Cleveland, OH

SUBJ: **TCLP RCRA Metals Data Quality Assurance Review**, International Harvester Site, Chicago, Cook County, Illinois

RE: Analytical TDD: T059308804 Project TDD: T059304010
Analytical PAN: EIL0607ABA Project PAN: EIL0607SAA

The data quality assurance review of one soil sample, collected from the International Harvester site on August 18, 1993, is now complete. The samples were submitted to IEA Laboratories of Schaumburg, Illinois, to be subjected to the toxic characteristic leaching procedure (TCLP), the leachate of which to be analyzed for the 8 Resource Conservation and Recovery Act (RCRA) metals. The laboratory prepared the TCLP leachate following SW-846 Method 1311. The leachate was analyzed by inductively coupled plasma spectroscopy (ICP), and cold vapor atomic absorption (CVAA), according to SW-846 Methods 6010 and 7471, respectively. The sample was labeled S-1, corresponding to the laboratory's number 931071004.

Data Qualifications:

I Holding Time: Acceptable.

The TCLP was conducted August 24, 1993. The resulting leachate was analyzed August 25, 1993, which meets the 6-month (28 days for mercury) holding time limit.

II Initial and Continuing Calibrations: Acceptable.

The percent relative standard deviations for each ICP standard is less than 10% (20% for mercury), as required. The sample was analyzed within 5 samples of a calibration standard or blank, as required. A blank and 6 standards were run to calibrate the CVAA instrument. The correlation coefficient (r) was greater than or

equal to 0.995, indicating a linear calibration curve. Continuing calibration verifications were within 10% of the initial calibration, as required.

III Blanks: Acceptable.

Method blanks were prepared and analyzed with the sample. The concentrations of all blanks fell below the instruments' detection limits (IDL).

IV ICP Interference Check: Acceptable.

All interference check sample results were within the control limits, indicating that instrument interferences were not present. The laboratory control sample (a spiked blank) percent recoveries (%R) were also within method-specified control limits.

V Error Determination: Not applicable.

Precision and bias were not determined for this sample.

VI Performance Evaluation Samples: Not Applicable.

VII Optional Additional Instrument QC: Not applicable.

Serial dilution was conducted on a non-E & E sample in the same analytical batch, as were matrix spikes. The results of those analyses were acceptable, but are not relevant to the sample under consideration here.

Overall Assessment:

This data evaluation is based upon the criteria outlined in OSWER Directive 9360.4-01 (1990). With the information provided, the results may be considered acceptable for use as reported.

IEA
An Aquanon Company

CLIENT: ECOLOGY & ENVIRONMENT
CLIENT ID: S-1
LAB ID: 31071004

TCLP ANALYTICAL RESULTS

EPA WASTE #	CONTAMINANT/ DATE LEACH: 8/23/93 DATE EXTRACT: 8/24/93		DATE ANALY	REG LIMIT (mg/L)	DETECTION LIMIT (mg/L)	AMOUNT DETECTED (mg/L)
	METALS	METHOD				
D004	Arsenic	6010	8/25	5.0	0.1	<0.1
D005	Barium	6010	8/25	100.0	0.05	1.4
D006	Cadmium	6010	8/25	1.0	0.005	<0.005
D007	Chromium	6010	8/25	5.0	0.01	<0.01
D008	Lead	6010	8/25	5.0	0.05	0.11
D009	Mercury	7471	8/25	0.2	0.0002	<0.0002
D010	Selenium	6010	8/25	1.0	0.1	<0.1
D011	Silver	6010	8/25	5.0	0.01	<0.01

ecology and environment, inc.
111 WEST JACKSON BLVD., CHICAGO, ILLINOIS 60604, TEL. 312-663-9415
International Specialists in the Environment

M E M O R A N D U M

TO: Richard Boelter, TAT Project Manager, E & E, Chicago, IL

DATE: October 1, 1993

FROM: Emily S. Landis, TAT Geochemist, E & E, Cleveland, OH

THRU: Anne A. Busher, ATATL, E & E, Cleveland, OH

SUBJ: **Polyunuclear Aromatic Hydrocarbons (PAH) Data Quality Assurance Review**, International Harvester Site, Chicago, Cook County, Illinois

RE: Analytical TDD: T059308804 Project TDD: T059304010
Analytical PAN: EIL0607ABA Project PAN: EIL0607SAA

The data quality assurance review of 3 liquid samples and one soil sample, collected from the International Harvester site August 18, 1993, is now complete. The samples were submitted to IEA Laboratories of Schaumburg, Illinois to be analyzed for PAH (PNA is the laboratory's acronym). The laboratory analyzed the samples by high precision liquid chromatography (HPLC), following SW-846 Method 8310.

The samples were labeled as follows:

TAT Sample #	corresponding to ->	IEA Sample #
L-1		931071001
L-2		931071002
L-3		931071003
S-1		931071004

Data Qualifications:

I Holding Time: Acceptable.

The laboratory received the samples on August 18, 1993, and extracted them August 19 and 23, 1993. The laboratory completed the analysis by August 27, 1993. This is within the method-specified holding times.

II Initial and Continuing Calibration: Acceptable.

The percent relative standard deviations (%RSD) of 9 response factors (RF) for each compound in the initial calibration were less than or equal to 30 %RSD, as required. In the continuing calibration, the percent differences (%D) for all listed compounds were less than or equal to 25 %D, as required.

IV Error Determination: Not applicable.

Precision and bias were not determined for these samples. Results of matrix spike samples are discussed in IX.

V Blanks: Acceptable.

Method blanks were prepared and analyzed for each matrix. All compounds in the method blanks were below the instrument detection limits (IDL), as required.

VI Compound Identification: Acceptable.

The relative retention times (RRT) were not calculated, because the instrument results were compared to external standards, not internal standards. Compounds present in the standard mass spectra are also present in the sample mass spectra. No stray peaks were found.

VII Compound Quantitation/Stated Detection Limits: Acceptable.

Initial sample volume/mass and dilutions were accounted for in the reported results.

VIII Performance Evaluation Samples: Not Applicable.

IX Optional QC Checks: Acceptable.

Surrogate Recoveries - Surrogate compound (carbazole) percent recoveries (%R) exceeded QC limits. The laboratory reanalyzed sample L-2 after dilution, and thereby determined that a matrix interference was present. The laboratory flagged the acenaphthylene result for that sample "E", indicating that the result should be rejected. After inspecting the data, this reviewer concurs with the laboratory's action.

Matrix Spikes - 2 matrix spikes were prepared for each matrix in the analytical batch. The liquid-matrix spike samples were prepared using sample L-1. The soil-matrix spike samples were prepared on a non-E & E sample, and therefore the results do not truly represent the matrix effects of sample S-1. The %R were all within quality control limits.

Overall Assessment:

This data evaluation is based upon the criteria outlined in OSWER Directive 9360.4-01 (1990). With the information provided, the results may be considered acceptable for use as reported by the laboratory.

IEA
An Aquarion Company

IEA PROJECT # CH931071
CLIENT PROJECT ID T05-9304-010
MATRIX WATER
ANALYSIS BY SKB

POLYNUCLEAR AROMATIC HYDROCARBONS (PNA)
SW-846 METHOD 8310
(ug/L)

CLIENT ID	L-1	L-2	L-2	L-3	METHOD BLANK	
LAB ID	31071 001	31071 002	31071 002D	31071 003	SW0819	PQL
COMPOUNDS						
Naphthalene	13.00	< 40.00 D	< 400.00 D	90	< 10.00	10
Acenaphthylene	< 22.00 D	1600 E	< 400.00 D	< 27.00 D	< 10.00	10
Acenaphthene	< 39.60 D	170	< 720.00 D	140	< 18.00	18
Fluorene	< 4.62 D	< 8.40 D	< 84.00 D	< 5.67 D	< 2.10	2.1
Phenanthrene	< 14.08 D	< 25.60 D	< 256.00 D	32	< 6.40	6.4
Anthracene	< 14.52 D	< 26.40 D	< 264.00 D	29	< 6.60	6.6
Fluoranthene	< 4.62 D	37	< 84.00 D	55	< 2.10	2.1
Pyrene	< 5.94 D	91	< 108.00 D	150	< 2.70	2.7
Benzo(a)anthracene	< 0.29 D	< 0.52 D	< 5.20 D	< 0.35 D	< 0.13	0.13
Chrysene	< 3.30 D	37	< 60.00 D	59	< 1.50	1.5
Benzo(b)fluoranthene	< 0.40 D	< 0.72 D	< 7.20 D	< 0.49 D	< 0.18	0.18
Benzo(k)fluoranthene	< 0.37 D	< 0.68 D	< 6.80 D	< 0.46 D	< 0.17	0.17
Benzo(a)pyrene	< 0.51 D	< 0.92 D	< 9.20 D	< 0.62 D	< 0.23	0.23
Indeno(1,2,3-cd)pyrene	< 0.95 D	< 1.72 D	< 17.20 D	< 1.16 D	< 0.43	0.43
Dibenzo(a,h)anthracene	< 0.66 D	< 1.20 D	< 12.00 D	< 0.81 D	< 0.30	0.3
Benzo(g,h,i)perylene	< 1.67 D	< 3.04 D	< 30.40 D	< 2.05 D	< 0.76	0.76
DATE SAMPLED	8/17/93	8/17/93	8/17/93	8/17/93	-	
DATE EXTRACTED	8/19/93	8/19/93	8/19/93	8/19/93	8/20/93	
DATE ANALYZED	8/21/93	8/21/93	8/26/93	8/21/93	8/20/93	
DILUTION FACTOR	2.2	4	40	2.7	1	

IEA
An Aquarion Company

IEA PROJECT#: ECOLOGY & ENVIRONMENT
CLIENT PROJECT ID: CH931071
MATRIX: SOIL
ANALYSIS BY: SKB

POLYNUCLEAR AROMATIC HYDROCARBONS (PNA)
SW-846 METHOD 8310
(ug/kg)

CLIENT ID	S-1	METHOD BLANK	
LAB ID	31071 004	SS0823	PQL
COMPOUNDS			
Naphthalene	110000	< 330	330
Acenaphthylene	< 66000	< 330	330
Acenaphthene	340000	< 330	330
Fluorene	< 66000	< 330	330
Phenanthrene	190000	< 330	330
Anthracene	78000	< 330	330
Fluoranthene	270000	< 330	330
Pyrene	140000	< 330	330
Benzo(a)anthracene	< 66000	< 330	330
Chrysene	< 66000	< 330	330
Benzo(b)fluoranthene	< 66000	< 330	330
Benzo(k)fluoranthene	< 66000	< 330	330
Benzo(a)pyrene	< 66000	< 330	330
Indeno(1,2,3-cd)pyrene	< 66000	< 330	330
Dibenzo(a,h)anthracene	< 66000	< 330	330
Benzo(g,h,i)perylene	< 66000	< 330	330
DATE SAMPLED	8/17/93	-	
DATE EXTRACTED	8/23/93	8/23/93	
DATE ANALYZED	8/27/93	8/26/93	
DILUTION FACTOR	200	1	